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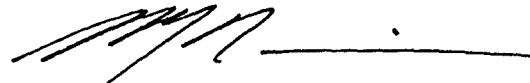
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EPD.PMP 10992

Subpart D Categorical Exclusion (RFO/CX01-94) Determination

C M Borgstrom, Director Office of NEPA Oversight, EH-25, HQ

We are writing to submit a categorical exclusion recently approved by the Rocky Flats Office for your review. A copy of RFO/CX01-94, Bench Scale Demonstration for the Electron Beam Melting of Beryllium-Aluminum Alloy, is attached.



Mark N Silverman
Manager

Attachment

cc w/Attachment
R S Scott, EM-20
D Smith, EM-62
P M Powell, RFO
S. M Nesta, EG&G
D Ussery, EG&G

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DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICEReviewed for Addressee
Corres Control RFP0-28-93
DATE BY

ADMIN RECORD

Ref Ltr #

OE ORDER # 5440 1

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SECTION D DETERMINATION
CATEGORICAL EXCLUSION (CX) DETERMINATION - RFO/CX01-94

Proposed Action: Bench Scale Demonstration for the Electron Beam Melting of Beryllium-Aluminum Alloy

Location: Building 865, Rocky Flats Plant, Golden, CO

Proposed by: U S. Department of Energy, Rocky Flats Office

Description of the proposed action:

Rocky Flats Office proposes to conduct a bench scale demonstration of the use of an existing electron beam (EB) melting furnace located at Rocky Flats Plant (RFP) in Building 865 (Figure 1) to melt beryllium-aluminum (Be-Al) alloys and attempt to create Be-Al alloys. The demonstration would also be conducted to verify that the solidification rate after the EB melting process is rapid enough to provide a desired fine grain structure in a newly processed or reprocessed Be-Al alloy.

The proposed bench-scale demonstration would consist of a maximum of four melting trials. The first trial would be performed on previously alloyed metal to verify that the solidification rate produces a fine grained metal. If these trials are successful, there would be two attempts to create an alloy from beryllium and aluminum in the EB furnace.

The EB melting process would use a water cooled copper mold which would promote rapid solidification. Rapid solidification creates a finer grain size in the Be-Al alloy which results in improved ductility, a characteristic desired in the alloy. The demonstration would also verify whether a Be-Al alloy can be consistently remelted without loss through vaporization. Experiments performed in this furnace can verify if Be-Al alloy reprocessing and improvement justifies contaminating the higher throughput vacuum arc remelter located in Building 447 (the use of this arc remelter is not proposed as part of the EB melting discussed in this categorical exclusion).

The experiments would require approximately eight weeks to perform. Three weeks are required to prepare the EB furnace. Approximately one week would be required for each melting evaluation (one day to prepare the furnace charge, one day to accomplish the melt, and three days to evaluate the results).

The EB melting furnace in Building 865 has not been operated for over two years. The establishment of vacuum must be assessed and safety checks on beam containment would be required. The furnace has been contaminated with beryllium from vaporization experiments performed as a part of the ongoing nuclear weapons components research at RFP between 1964 and 1974. The furnace has been used intermittently since that time for beryllium, uranium, tungsten, and other metal melting activities.

No modifications to the existing furnace or emissions control systems would be required to support the proposed project. The furnace's vacuum emissions control system is connected to the Building 865 plenum system and other air filtering controls. The plenum system consists of a multi-stage High Efficiency Particulate Air filtration system which is designed to control all potential emissions from the building. All of these systems are adequate to serve the emissions control requirements of the use of the EB furnace for the proposed demonstration. Although no air emissions are anticipated to be produced as a result of the proposed demonstration, Air Pollution Emissions Notices (APENs) were examined for both beryllium and aluminum. An APEN exists

for beryllium and any emissions of this metal would be within the emissions restrictions No APEN is required by the State for pure aluminum

A waste stream consisting of a very small quantity of stainless steel foil contaminated with beryllium powder (the foil lines the furnace) could result from the demonstration if an unplanned vaporization of the beryllium occurs Beryllium is a RCRA-listed hazardous material and would be handled under the existing RFP RCRA permit. The bench-scale demonstration is currently anticipated to cost \$30,000

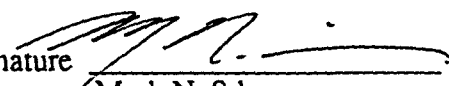
Categorical Exclusion to be Applied:

B3.10. Small scale research and development projects and small-scale pilot projects conducted (for generally less than two years) to verify a concept before demonstration actions, performed in an existing structure not requiring major modification (10 CFR 1021, Appendix B to Subpart D)

DOE NEPA REGULATIONS SUBPART D
CATEGORICAL EXCLUSION DETERMINATION - RFO/CX01-94
Bench Scale Demonstration for the Electron Beam Melting of Beryllium-Aluminum Alloy

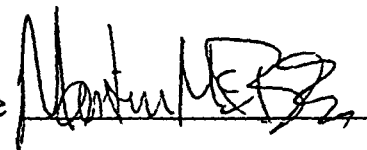
I have determined that the proposed action meets the requirements for a categorical exclusion as defined in the Subpart D of 10 CFR 1021. Therefore, I approve the categorical exclusion of the proposed action from further NEPA review and documentation.

Date 10/26/93

Signature 
Title Mark N Silverman
Manager, Rocky Flats Office

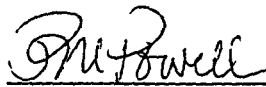
RFO Project Sponsor

Date 10/21/93

Signature 
Title Deputy Assistant Manager,
Transition & Environmental
Restoration

I have reviewed this determination and find that a categorical exclusion is the appropriate level of NEPA documentation

Date October 1, 1993

Signature 
Title Patricia M Powell
NEPA Compliance Officer

ADS # 6730

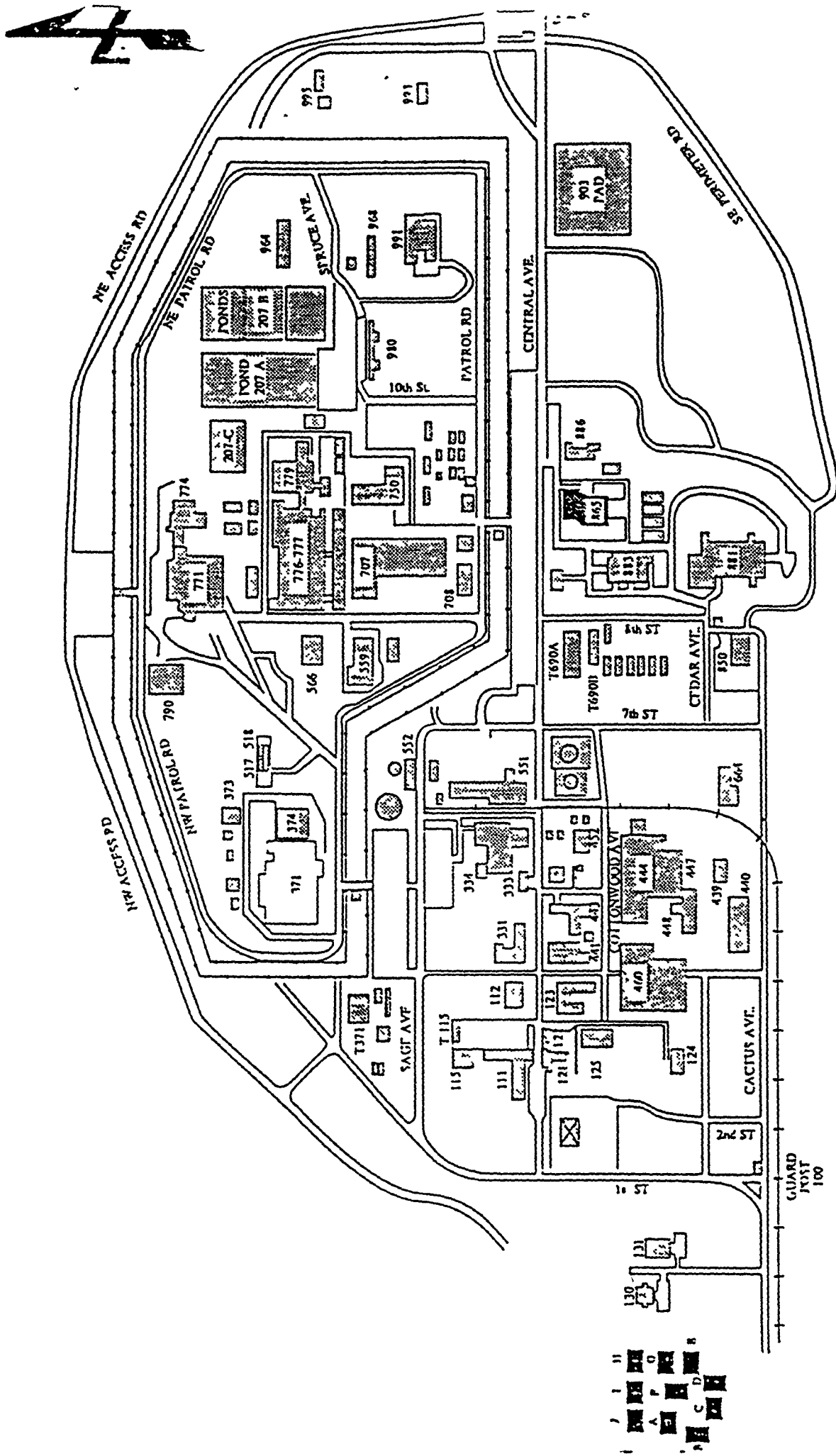


Figure 1. Building 865 at Rocky Flats Plant.